

CLAIMS

WHAT IS CLAIMED IS:

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1. An article of manufacture, comprising:  
a carrier of the article of manufacture, the carrier having a surface;  
a heater overlaying the surface, the heater including;

10 i) a flexible carrier;  
ii) a first conductive medium disposed upon the carrier wherein  
the first conductive medium includes:

1) a negative section having a plurality of first extensions;

and

15 2) a positive section having a plurality of second  
extensions; and

20 iii) a second conductive medium that includes a plurality of  
strips, each of the strips in overlapping relation with one of the plurality  
of first extensions and one of the plurality of second extensions, the  
plurality of strips also extending substantially parallel to the first and  
second extensions.

2. An article as in claim 1 wherein the carrier of the heater and the  
first conductive medium cooperatively define at least one contour, which  
bends about a contour of the article.

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3. An article as in claim 2 wherein the carrier of the heater has an  
hour-glass shape.

4. An article as in claim 3 wherein the carrier of the heater has a  
30 centralized opening defined adjacent the at least one contour.

5. An article as in claim 1 wherein the heater includes a first  
electrical connection and a second electrical connection.

6. An article as in claim 5 wherein the only electrical connections of the heater are the first and second electrical connections.

7. An article as in claim 1 wherein the plurality of strips is substantially uniformly spaced apart from each other.

8. An article as in claim 1 wherein each strip of the plurality of strips has substantially the same shape.

9. An article as in claim 1 wherein each strip has a substantially continuous density throughout.

10. An article as in claim 1 wherein the carrier is formed of a material having a dielectric constant greater than 1.

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11. An article as in claim 1 wherein the carrier is formed of a material having an elongation at failure greater than 15%.

12. An article as in claim 1 wherein the carrier is formed of a material having an elongation at failure greater than 50%.

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13. A seat of an automotive vehicle, comprising:  
a foam cushion for a support component of the vehicle seat, the foam cushion having a cavity;

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a heater overlaying the cushion, the heater including;

i) a flexible carrier formed of a material selected from the group consisting of polymeric materials and fabric materials, the carrier including a first lengthwise edge opposite a second lengthwise edge, both the first and second lengthwise edge having an indentation with at least one contour;

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ii) a first conductive medium disposed upon the carrier, the first conductive medium being formed of a polymeric material wherein the first conductive medium includes

- 5                   1) a negative section having a first base portion and a plurality  
                    of first extensions extending from the first base portion, the  
                    first base portion extending along the first lengthwise edge of  
                    the carrier along the at least one contour of the first  
                    lengthwise edge; and
- 10                  2) a positive section having a second base portion and a  
                    plurality of second extensions extending from the second  
                    base portion, the second base portion extending along the  
                    second lengthwise edge of the carrier along the at least one  
                    contour of the second lengthwise edge; and
- 15                  iii) a second conductive medium that includes a plurality of strips,  
                    each of the strips in overlapping relation with only one of the  
                    plurality of first extensions and only one of the plurality of  
                    second extensions, the plurality of strips also extending  
                    substantially parallel to the first and second extensions, the  
                    second conductive medium having a positive thermal  
                    coefficient; and
- a trim layer substantially covering the foam cushion;  
                    wherein the heater is tied down to the foam cushion such that the  
20                  heater curves at the at least one contour of the carrier.

25                  14. An article as in claim 13 wherein the carrier has a centralized  
                    opening between the indentation of the first lengthwise edge and the  
                    indentation of the second lengthwise edge.

                    15. An article as in claim 13 wherein the heater includes a first  
                    electrical connection and a second electrical connection and wherein the first  
                    and second electrical connections are the only electrical connections of the  
                    heater.

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                    substantially uniformly spaced apart from each other and each strip of the  
                    plurality of strips has substantially the same shape.

17. An article as in claim 13 wherein each strip has a substantially continuous density throughout.

5 18. An article as in claim 13 wherein the carrier is formed of a material having a dielectric constant greater than 1.

19. An article as in claim 13 wherein the carrier is formed of a material having an elongation at failure greater than 15%.

10 20. An article as in claim 13 wherein the carrier is formed of a material having an elongation at failure greater than 50%.

21. A heater, comprising:  
a carrier;  
15 a first electrically conductive medium having at least three sections disposed upon the carrier, wherein the at least three sections includes:

i) a first section;  
ii) a second section spaced apart from the first section;  
20 and  
iii) a third section spaced apart from the first and second section; and

a second electrically conductive medium electrically connecting the first, second and third sections,

25 wherein at least two of the at least three sections are selectively electrically connected to a positive or a negative terminal of a power supply.

30 22. The heater of claim 21, wherein the selective connection of the at least three sections to the positive or negative section of the power supply results in the heater selectively having at least three temperature settings.

23. The heater of claim 21, wherein the selective connection of the at least three sections to the positive or negative section of the power supply results in the heater having different heated regions.

5           24. The heater of claim 21, further comprising a switch for selectively connecting the at least two of the at least three sections to the positive or negative terminal of the power supply.

10           25. The heater of claim 21, wherein the carrier comprises a flexible material.

26. The heater of claim 22, wherein the second conductive medium comprises a Positive Thermal Coefficient (PTC) material.

15           27. The heater of claim 21, wherein one of the at least three sections overlaps another of the at least three sections.

20           28. The heater of claim 21, wherein the at least three sections are disposed upon the carrier according to a pattern.

29. The heater of claim 28, wherein the pattern is selected from serpentine, straight parallel, cruved parallel, zig-zag, spiral parallel, rectangular parallel or a combination thereof.

25           30. The heater of claim 21, wherein the at least three sections are further configured with extensions spaced apart from one another.

30           31. The heater of claim 30, wherein the at least three sections disposed upon the carrier form a interdigitated pattern.

32. A heater for an article of manufacture, comprising:  
a flexible carrier;

a first electrically conductive medium having at least three sections disposed upon the carrier, wherein the at least three sections includes:

- 5                   i) a first section having one or more first extensions;  
                  ii) a second section having one or more second extensions; and  
                  iii) a third section having one or more third extensions, wherein the extensions of at least one of the three sections are adjacent to the extensions of  
10                   another of the three sections; and

a second electrically conductive medium electrically connecting the first, second and third sections,

wherein at least two of the at least three sections are selectively connected with a positive or a negative terminal of a power supply, and  
15                   wherein selective connection results in at least three heat output levels of the carrier.

33. The heater of claim 32, wherein the selective connection of the at least three sections results in the heater having different heated regions.  
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34. The heater of claim 32, further comprising a switch for selectively connecting at least two of the the three sections to the positive or negative terminal of the power supply.

25                   35. The heater of claim 32, wherein at least one of the heat output levels is zero.

36. The heater of claim 32, wherein the first, second and third extensions are substantially uniformly spaced apart from each other.  
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37. The heater of claim 32, wherein the extensions of the at least three sections form a pattern selected from interdigitated, zig-zag, serpentine, straight parallel, cruved parallel, spiral parallel, rectangular parallel or a combination thereof.

38. The heater of claim 32, wherein the heater is configured for attachment to an article of manufacture selected from a mirror or a seat.

5 39. The heater of claim 32, wherein at least one overlapping relationship exist between the at least three sections.

40. An article of manufacture, comprising:  
a carrier of the article of manufacture, the carrier having a  
10 surface;  
a heater overlaying the surface, the heater including;  
a flexible carrier;  
a first conductive medium having at least three sections  
disposed upon the carrier, wherein the at least three  
15 sections includes:  
i) a first section;  
ii) a second section spaced apart from the first  
section; and  
iii) a third section spaced apart from the first  
20 and second sections; and  
a second conductive medium electrically connecting the  
first, second and third sections,  
wherein at least two of the at least three sections are  
selectively and electrically connected with a positive or a negative  
25 terminal of a power supply thereby generating heat, and wherein  
selective connection results in at least three heat output levels of the  
heater.

41. An article as in claim 40, wherein the carrier is selected from a  
30 seat or mirror.

42. An article as in claim 40, wherein each of the at least three sections of the heater further comprises an electrical connector.

43. The heater of claim 40, wherein the selective connection of the at least two of the at least three sections to the positive or negative terminal of the power supply results in the heater having different heated regions.

5 43. The heater of claim 40, further comprising a switch for selectively connecting the at least two of the three sections to the positive or negative terminal of the power supply.

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